DOCUMENT RESUME

ED 262 277 CE 042 720

AUTHOR Meaders, O. Donald
TITLE Development and Strengthening of Agricultural Education in Commonwealth of Dominica. A Report.
INSTITUTION Michiagn State Univ., East Lansing. Dept. of Agricultural and Extension Education.
PUB DATE 5 Mar 85
NOTE 24p.; A study conducted during October 1984 at the request of the Caribbean Agricultural Extension Project in cooperation with the Ministry of Agriculture and the Ministry of Education. For related documents, see CE 042 719-723.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Agricultural Education; *Change Strategies; Curriculum Development; Economic Development; Educational Cooperation; *Educational Improvement; *Educational Needs; Educational Policy; Elementary Secondary Education; *Foreign Countries; Government Role; Government School Relationship; Needs Assessment; Policy Formation; Postsecondary Education; Public Policy; School Role; Teacher Education; *Vocational Education
IDENTIFIERS Caribbean Agricultural Extension Project; *Dominica

ABSTRACT

A study examined existing agricultural education programs in Dominica and made recommendations for needed improvements. Data for the evaluation were obtained from numerous documents and publications, field trips, and discussions with key officials in various ministries and institutions, including the Ministry of Agriculture, Ministry of Education, Clifton Dupigny Community College and various secondary schools throughout the country, a farm, a market, and the La Plaine French Technical Cooperation Project. The existing agricultural education programs in the Commonwealth of Dominica should be strengthened inasmuch as they are needed as part of the country's human resource development to achieve improved agricultural productivity and improved rural living. The Ministry of Education should continue to bear the primary responsibility for administration of agricultural education in the country; moreover, the Ministry of Education should strengthen the supportive services and cooperation that it provides in the delivery and supervision of agricultural education. Included among the areas in which improvements are particularly needed are the following: staff development, curriculum and instructional development, improvement of facilities and equipment, establishment and assistance of pilot school programs, and establishment of a network for communication and exchange among educators within Dominica and from other Caribbean islands. (Appendixes to this report include a listing of documents reviewed by the researcher, data on present staffing and conclusions based on a previous study of agricultural colleges in the country.) (MN)

A report on:

DEVELOPMENT AND STRENGTHENING OF AGRICULTURAL EDUCATION IN COMMONWEALTH OF DOMINICA

ED262777

(A study conducted during October 1984 at the request of the Caribbean Agricultural Extension Project in cooperation with the Ministry of Education and Ministry of Agriculture)

by

O. Donald Meaders, Professor
Agricultural and Extension Education

BEST COPY AVAILABLE

Department of Agricultural and Extension Education
College of Agriculture and Natural Resources
Michigan State University
East Lansing, Michigan 48824-1039

CE042720

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

O D Meaders

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ODM/aes
10/12/84
Revised 3/5/85

DEVELOPMENT AND STRENGTHENING OF AGRICULTURAL EDUCATION

COMMONWEALTH OF DOMINICA

Introduction

A consultant was requested by the Ministry of Education to review the agricultural education program at the Clifton Dupigny Community College and to make recommendations regarding the future of the program. In addition, the consultant was asked to make recommendations regarding the teaching of agriculture at both primary and secondary school levels. The consultant was sponsored by the MUCIA Caribbean Agricultural Extension Project.

The following report with recommendations is based on the observations and discussions held by the consultant during the period October 1 through October 12, 1984.

Observations and Discussions

The two-week period provided opportunities for many discussions and observations. The following is a list of organizations, agencies and institutions where information was sought from key people regarding all aspects of agricultural education in Dominica.

* Ministry of Education
* Ministry of Agriculture
* Clifton Dupigny Community College (CDCC)
* Stock Farm
* Windward Islands Aloe, Ltd (Aloe Farm)

* Marigot Foundation High School
* St. Andrews High School
* St. Mary's Academy
* Convent High School
* Dominica Community High School
* La Plaine French Technical Cooperation Project
* Roseau Vegetable Market

Attached is a list of titles of various reports and other materials which were reviewed. (See Appendix A).

In-depth discussions were held at CDCC with the Director (Rupert Sorhaindo), agricultural teachers and agricultural students; Head of Extension (Allan Guye) and agricultural communications officer (Charles James); Christian Castellanet, French Technical Cooperation Project; Marshall Bernard, Manager of Aloe Farm; Mike Ratcliffe, Regional Science Education Adviser; Dr. Tom Henderson and Mr. George Saksa, Caribbean Agricultural Extension Project; and Collin Bully, Agricultural Development Adviser.

The following is a summary of the major observations regarding agricultural education.

1. Many people expressed their concerns about the lack of qualified agriculturally trained persons for filling positions in schools, government, extension and agri-business.
2. There are few trained <u>female</u> agriculturists in technical and professional positions.
3. The agricultural sector of Dominica is dynamic and requires both an expansion and upgrading of the agriculturalists who provide research, teaching,

planning, policy and service functions.

4. The small-scale landholder, a positive and desirable characteristic of Dominican agriculture, with his/her primary level of schooling provides a basis for significant increases in productivity as a consequence of educational programs.

5. The Clifton Dupigny Community College (CDCC) has made a significant beginning with an agricultural program. (See Appendix A for list of course and syllabus materials reviewed and Appendix C for summary comments from a separate study).

   a. A curriculum showing the amount of time (or proportion of time) for courses throughout the two-year program was not available;

   b. Course outlines and syllabi were available for the instruction in selected areas;

   c. The availability of related/relevant courses and modules of instruction from other programmes in CDCC to agricultural students is a major asset.

   d. Having the agricultural education program as one component within CDCC, rather than as a separate entity, provides lower costs for administration and support services.

   e. The Stock Farm and other land attached/available to CDCC provide the potential for development of student practices and demonstrations in crops

and livestock. In addition, there is the potential for student management/ownership in projects as a means of gaining the ability to do and to manage;

f. The present facilities and equipment at both the College and the Stock Farm (which was severely damaged by Hurricane David in 1979) are inadequate for a strong educational programme;

g. The transfer of the Stock Farm from the MOA to the CDCC requires additional planning for staffing, and budgets in regards to the requirements for development to meet the educational needs of CDCC and the continuation needs of the Ministry of Agriculture;

h. The present students were enthusiastic about their studies; and had aspirations for careers in agriculture;

i. The present temporary and part-time instructors were enthusiastic about the potential for the programme but realistic about the limitations due to facilities, equipment and the part-time, temporary nature of their assignments.

j. The present instructors lack formal preparation as teachers;

k. The organizational structure, including the Advisory Board with representation from

agriculture, provides the primary decision-making through the Ministry of Education.

1. There is no library with books, journals and other reference materials for agriculture. However, there are plans for construction of a library building in the near future.

6. The teaching of agriculture in secondary schools is seriously handicapped by (a) a lack of minimally qualified teachers, (b) absence of land and equipment for conducting practical instruction, and (c) the lack of an in-service programme to help teachers "grow-on-the-job".

   a. Three agricultural areas for instruction which are especially weak in secondary schools are animal science, farm management and farm mechanics.

   b. There is no evidence in either the syllabus or the teaching programmes for teaching leadership and cooperation as part of the general objectives for agricultural education.

   c. The agricultural syllabus for Forms I, II and III (Junior Secondary School) provides the agricultural teacher a guide to content areas to be covered in available textbooks. (An experienced, qualified teacher could use the syllabus to develop courses and an instructional calendar with specific

instruction adapted to the community resources and the seasonal farming activities).

d. Summary data were not available to the consultant regarding the number of students enrolled in agriculture, number of graduates who studied agriculture, and the subsequent occupational and educational attainments of the graduates. Student achievements in agricultural studies are more likely to be reported as part of performance on the external examinations.

e. There is evidence of some creativity and resourcefulness in teaching agriculture. The Headmaster at Marigot Foundation High School has had the students build and use a solar drier for copra and green bananas. He has directed and supervised students in gardening, goat management, poultry production and other agricultural activities. And he has used agricultural products in the preparation of nutritious snacks which are sold at low cost to the students. Finally, he has plans for greater involvement of parents in the school programme and for supervision of student projects at home farms.

f. The enthusiasm of the headmaster at the Dominica Community High School is evident in the attitudes of both the teachers and the students regarding agricultural instruction. For example, parents

have volunteered the use of their personal equipment for performance of practicals at the school.

g. The Dominica Grammar School has temporarily suspended instruction in agriculture due to the lack of teachers and land.

7. The need for additional agriculturally trained persons has been documented as both a short-run and long-run problem. (See appendix B)

Recommendations

The agricultural education programs in the Commonwealth of Dominica should be strengthened. The programs are needed as part of human resource development to achieve improved agricultural productivity and improved rural living.

Clifton Dupigny Community College

The agricultural program at CDCC should be strengthened so that eventually it becomes a diploma level program with accreditation. Changes are recommended in the organizational structure as well as improvements in curriculum, courses, instructional staff, classrooms, library, field facilities and equipment.

The objectives for the agricultural program as currently stated, are appropriate. It is recommended that the program continue to be designed to prepare front-line extension workers, agricultural teachers for the secondary schools, technicians for agri-business, and individuals to enter and advance in farming.

Other recommendations follow:

1. The organizational structure should show clear lines of authority and responsibility and at the same time insure appropriate communication and cooperation for the direction and support of the various vocational and technical programmes. The agricultural education programme should provide for advise on policy, finances, and courses from both the public and private sector. The following recommendations are suggested as one alternative to achieving the goal:

   a. The Ministry of Education should continue to be the primary (or lead) ministry for the administration of the C.D.C.C.

   b. A Board of Directors should replace the present Advisory Board. The membership of the Board of Directors should consist of appropriate persons from the concerned ministries (e.g. Agriculture, Education, Industrial Development Corporation, Economic Development Unit, and others) plus three persons from the private sector, one each from agriculture, commerce and industry. The Principal of CDCC should serve as an ex-officio member of the Board. The Board would be responsible for operating policies, long-range plans, budgets and programme plans.

   c. A series of Curricular/Occupational Advisory Committees should be established to report to

the Board of Directors. The Chief Education Officer, Ministry of Education (or his representative) should coordinate the work of these advisory committees to assure appropriate articulation/linkage among the curricula at the various levels of schooling (primary, secondary, tertiary). Each committee is to provide advice on the development and operation of the programme(s) in their field. For example, the Agricultural Curriculum Committee should have representation from the private sector (farming and agri-business) and the government sector. The committee would offer advice on curriculum, facilities and equipment, resource persons for special lectures/demonstrations, coordination for the instructional calendar, for use of other agency resources such as test plots, propagation centres, etc.

2. The general standard for intake of students should be CXC ("O" Level) in three areas: science, mathematics and English. Exceptions should be considered for persons with experience qualifications which indicate their likelihood for success.
3. The intake should consist of at least 15 students (maximum 20) each year, starting in the fall of 1985. It should include both male and female students.
4. The staffing should consist of three permanent, full-

time instructors: two starting in July 1985 and one additional instructor starting in 1986. In addition, a farm manager and a farm attendant are needed. During the first year, 1985-86, casual labour will be needed for the preparation of land, fencing, etc.

5. A curriculum should be developed to include, but not be limited to, the following major areas of instruction in agriculture:

a. Livestock
b. Crops
c. Soils and conservation
d. Farm mechanics
e. Farm management
f. Agricultural communications
g. Methods of teaching agriculture
h. Community and family
i. Supervised placement experience

In addition, the curriculum should include appropriate science, chemistry and mathematics courses.

6. The Stock Farm and the land on the CDCC site are appropriate for further development in order to provide student practice in both crops and livestock. The Stock Farm will require more specific planning for long-term use on a mutually beneficial basis by CDCC and the Ministry of Agriculture. Mutual agreement is needed on the objectives, management, facilities and equipment, livestock, budgets, staffing, etc. In addition, it is very important to avoid future encroachments upon the land which would diminish the

area available as a laboratory, breeding stock station, and educational site. The land on the CDCC site will require fencing and other development.

7. Other program areas in the CDCC should continue to be utilized when planning the courses and instructional modules. For example:
   - auto mechanics for study and practice on engines;
   - building construction for study and practice on farm construction and electricity;
   - English for report preparation;
   - science and mathematics courses for remedial and upgrading qualifications.
8. After planning the curriculum and courses, a realistic list of facilities, tools, seeds, fertilizers, chemicals, etc. should be developed.
9. A library consisting of reference books, current periodicals and journals is necessary to provide opportunities for in-depth studies by students with special interersts as well as to supplement textbook, research bulletins and course references.

Ministry of Education

It is recommended that the support services, including supervision, for agricultural education be strengthened.

1. The person responsible for supervision of the science programs should also be responsible for supervision of the agricultural education programs. (Note: this

is recommended instead of a separate position for agricultural education supervision in light of the shortage of available qualified persons.)

2. Instructional materials should be developed for use in primary schools for the teaching of agriculture through the basic education programs.
3. In-service programs should be planned and conducted to provide assistance to teachers and headmasters; and to provide guidance to program development.
4. Periodic follow-up studies should be conducted, at least once each five years, to secure information about the academic and occupational attainments of the school graduates who studied agriculture. This information should be used when revising the curricula and when planning the in-service program.
5. Primary school programme in agriculture should be aimed at developing more favourable attitudes toward agriculture, using agriculture as a means for teaching science concepts, and using school gardens in support of improved nutrition programs (in cooperation with the other agencies and organizations concerned with feeding programmes).

Secondary Schools

Agricultural education in the secondary schools should provide all students with a better understanding of the importance of agriculture in their daily lives and its importance

to the economy of the Commonwealth of Dominica. In addition it should serve for some students as preparation for entrance and advancement in careers in agriculture including farming and agri-business. The teaching of agriculture in the secondary schools should have a positive impact on the agriculture in the school community.

1. More teachers should be prepared to teach agriculture. This may be achieved through the recommendations for CDCC.
2. An in-service program should be planned and implemented to upgrade the persons who are now teaching agriculture.
3. The schools must have access to land to be used for the practical/applied part of the instructional program in the areas of crops, soils, livestock, farm mechanics, and farm management.
4. Tools and other equipment necessary for use by students to perform agricultural practices should be provided.
5. Facilities for secure storage of supplies such as seeds and chemicals as well as for storage of equipment are essential.
6. Teachers should be assisted in development of low-cost instructional materials, planning and conducting demonstrations, and conducting school based assessment.
7. Special emphasis should be placed on helping teachers

use student projects (supervised occupational experiences) as a method of teaching agriculture. These projects should give students experience with crops and livestock from planning, to doing, to marketing.

8. The secondary school teachers of agriculture should cooperate with the agricultural extension agents for using school facilities and equipment to conduct farmer education.

9. The revision of the CXC curriculum should include two additional areas of emphasis for the agricultural students: agricultural leadership and agricultural cooperation. These two areas are important for students to learn how to succeed as individuals and as members of the community/society.

10. The teachers should be provided in-service education for use of the problem solving method when teaching agriculture. This method helps students develop the ability to solve agricultural problems in relation to commercially important livestock, crop, soils and other areas of concern faced by farmers.

Primary Schools

No district or school level observations were made regarding the teaching of agriculture in the Dominica primary schools. The following comments and recommendations are based on experiences and observations in other countries, including Trinidad and Tobago.

Agricultural instruction in the primary school should be introduced through the academic curricula. The teaching of agriculture at the primary level is critical for changing social perceptions of agriculture, for strengthening the teaching of science through use of the near environment of the children, and for improvement of the nutrition of the children.

The relationship between agriculture and the livelihood of students can and should be identified and reinforced through instruction at this level of schooling.

It is recommended that the inservice program to prepare qualified assistant teachers should include an optional course (module) in AGRICULTURE. Instructional materials for use by primary school teachers should be prepared by the Ministry of Education in cooperation with the Ministry of Agriculture. Special attention should be given to examples of how to use the local agricultural resources in the instructional programs.

It is recommended that school gardens be developed where land is available. The primary purpose of the garden should be to improve the nutrition and eating habits of the children. Attention should be given to select varieties of vegetables which are most appropriate for "kitchen gardens". This gardening effort should be coordinated with the existing nutritional programs for children.

Recommendations for Implementation

There is great urgency for strengthening the agricultural education system, as one of the essential components of

agricultural development. Outside funding should be sought immediately for a two phase, five-year project. The Ministry of Education, in light of its own goals for human resource development, should seek cooperation from the Ministry of Agriculture for support in a request for donor/outside agency funding.

1. The Caribbean Agricultural Extension Project should be requested to assist with the preparation of a specific funding request.
2. The proposal should include a request for assistance with:
   a. Staff development;
   b. Curriculum and instructional programme planning and implementation;
   c. Facilities and equipment;
   d. Establishing and assisting pilot school programmes;
   e. Establishing a network for communication and exchange among agricultural educators within Dominica and between the agricultural educators of Dominica and other Caribbean islands.

3. The project should have a target date for starting on July 1, 1985 in order to have the CDCC agricultural programme ready for 1985-86. This should include

consultant assistance during July and August to prepare couses and a calendar for instruction.

O. Donald Meaders - Professor
Agricultural & Extension Education
Michigan State University

APPENDIX A

List of Titles of Documents Reviewed by the Consultant

1. "Establishment and operation of vocational agriculture in primary, secondary and technical schools (in Dominica)" by J. Bernard Yankey, February 28, 1983 6pp (mimeographed).

2. "Cabinet note: Establishment of a Dominica Community College" by C.A. Maynard, Minister for Education and Health, August 22, 1983, 3pp (mimeographed).

3. "Technical education in the Commonwealth of Dominica" by MacDonald Alexander, Principal, Clifton Dupigny Technical College, for Technical meeting in Barbados, February, 1982, 11pp.

4. "The Windward Islands and Leeward Islands agricultural College Study," Phase I - Report to the Caribbean Community Secretariat/Government of St. Lucia by Triad Architects Planners, 9 Tufton Street, London SW1P 3QB in association with Landell Mills Associates Ltd, Columbus House, Trossachs Drive, Bath BA2 6RR, January 3, 1984, 25 pp.

5. "Youth and the private sector: a case study of a pilot project - Young Farmers Development" by R.A. Baynes, Agricultural Adviser, Barclays Bank International, Ltd Caribbean Head Office, Bridgetown, Barbados, West Indies, (a paper read at a meeting of Caribbean Studies Association Panel on "Youth in the Caribbean", Kingston, Jamaica, May 28, 1982), 17 pp.

6. "Creation of a Final Honours Course: Caribbean Agricultural Development at the University of the French West Indies and Guiana (U.F.W.I.G.)" by A. Bory, V. de Reynal and J. Crusol, Pedagogic Supervisor, October 1983, 23 pp (mimeographed).

7. "Proposal for an Integrated Agricultural Development Pilot Process Founded on Agrarian System Analysis, Eastern District of Dominica, West Indies" by Stephen Bellon, Agronomist (Institute National Agronomique) and Philippe Dierickx (Expert in Rural Development for the French Ministry of Foreign Affairs, La Plaine, May 1981, 29 pp (mimeographed).

8. "First Annual Report on Activities, year 1982/1983", French Technical Cooperation, S.B./H.J., June 1983, 47 pp (mimeographed).

9. "General Bibliography", A mimeographed list of materials prepared by the Agricultural Mission in Dominica, W.I. French Technical Cooperation for the Ministry of Foreign Affairs from January 1980 to September 1982, 3 pp (mimeographed).

10. "Incipient Development and Vocational Evolution in Dominica", Human Organization, Volume 30, No. 3, Fall 1971 pp 239-254 by William B. Rodgers.

11. "Progress Report on Activities, October 1982" by S.B./H.J., French Technical Cooperation, Ministry of Agriculture, Dominica, 12 pp. (mimeographed). Note: this report containes information about a training program for agricultural students.

12. "A Classification of Farming Systems in the Eastern District of Dominica" by the French Technical Cooperation Office, La Plaine Post Office, Dominica, (no date) 15 pp (mimeographed).

13. A series of course outlines, syllabus, other items from Clifton Dupigny Community College:

    a. 1983-84 Syllabus: Tropical Pulses, Tropical Cash Crops, Tropical Root Crops, Agricultural Extension in Developing Countries, Tropical Fruits, Plant Nutrition, Soil Acidity, Soil Conservation, Irrigation Principles and Practices, Farming Systems in the Tropics, Soils, Energy for Rural Development, and Soil Improvements (by John Helsen);

    b. Farming Systems: Research and Development;

    c. CDCC Agricultural Programme, Technical Studies Division, Post-High School Education Program: Soil Science, Farm Machinery, Genetics, Basic Entomology, Plant Pathology, Animal Husbandry, Organic Chemical and Elementary Biochemistry, and General Chemistry:

    d. Clifton Dupigny Technical College: Agricultural Science Syllabus - Agricultural Mathematics, Chemistry, Growth of Plants, Animal Husbandry, Farm Mechanics, Farm Economics, Soil Science, Crop Husbandry;

    e. CDCC Status and Recommendations, October 1983 (Student Fees, Remuneration for Part-time staff, Part-time Programme, Need for College Deposit Account, Scholarships for Agricultural Students, Staff Work Load,

Physical Facilities, Library Facilities, Laboratory Facilities, and Financial Viability.) Note: this is a very useful report to provide the reader with an overview ofthe situation at CDCC;

f. CDCC Technical/Vocational Division: Botany Syllabus;

g. Budget (request) with detail for Establishment of Unit for the Training of Agricultural Students in the growing of Vegetables, Propagation of Ornamentals, Exotics, and Popular tree (Fruit) crops and for demonstrations;

h. Memorandum dated 16 November, 1983 from Agricultural Instructors B. Henderson and C. Charles to Director, CDCC, Technical/ Vocational Division regarding needs for a "Farm Attendant";

i. CDCC 1984-85 Budget Estimates.

14. "Tentative Agricultural Syllabus", Forms I, II and III, Ministry of Education, Dominica, Junior Secondary Programme. (No date), 4 pp (mimeographed).

15. Report No. 4740-DOM Dominica Economic Memorandum. Document of the World Bank, Latin America and the Caribbean Regional Office, October 28, 1983. For Official Use Only.

APPENDIX B

Present Staffing and Training Needs in Dominica:
A Comparison of Two Studies...1974-75 and 1983

Henderson Study...Data Collected December 1974-April 1975		Edmunds Study...Data Collected February-May, 1983	
Present Staff Resources:		**Staff in Post:**	
Graduate	16	26	Graduate
Intermediate	16	--	Local Trained
Untrained	78	45	Overseas Trained
Vacancies:		**Vacancies:**	
Graduate	6	4	Graduate
Intermediate	12	-	Intermediate
Additional 10-Year Needs:		**Staff in Training:**	
Graduate	18	11	Graduate
Intermediate	76	7	Intermediate
Projected Total 10-Yr Needs:		**Projected 3-YR Training Needs:**	
Graduate	24	34	Graduate
Intermediate	107	65	Intermediate

The need for additional persons in Dominica trained in agriculture at the graduate and intermediate levels did not diminish during the ten-year period between the studies by Henderson and Edmunds. The Edmunds study in 1983 concluded that inDominica "the trained manpower...is at present inadequate to provide the necessary technical backup and to service the agricultural development plans that are envisaged." (p. 16)

APPENDIX C

Conclusions Based on the Agricultural College Study for the Windward and Leeward Islands*

The Agricultural College Study for the Windward and Leeward Islands (1984) contained conclusions which were reviewed and considered by the consultant. The following are excerpts from the 1984 study:

1. The present Dominica output of 13, potential of 15, and requirement (demand)of 5-13 is based on data regarding the Clifton Dupigny Community College (CDCC).

2. Difficulty was reported in finding qualified students to enter the program at E.C.I.A.F.

3. Overseas training to the diploma level was reported to change the "expectancy" of individuals who then did not return to serve the agricultural community.

4. Weeknesses reported in the new agricultural program at CDCC were (a) lack of a full syllabus, (b) lack of facilities, (c) heavy reliance on part-time staff from other agricultural organizations, and (d) too much of a "look and learn" approach to the instruction.

5. The new program at CDCC was reported to be reviewed as a source of 2-5 new agricultural teachers per year depending upon the availability of finances.

*See Appendix A for exact title.